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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :
G06F 19/07, G07F 7/08, H04Q 7/32, G06T 15/00

A1

(11) International Publication Number: WO 99/64976

(43) International Publication Date: 16 December 1999 (16.12.99)

(21) International Application Number: PCT/SE99/00870

(22) International Filing Date: 21 May 1999 (21.05.99)

(30) Priority Data:
9802001-9 5 June 1998 (05.06.98) SE

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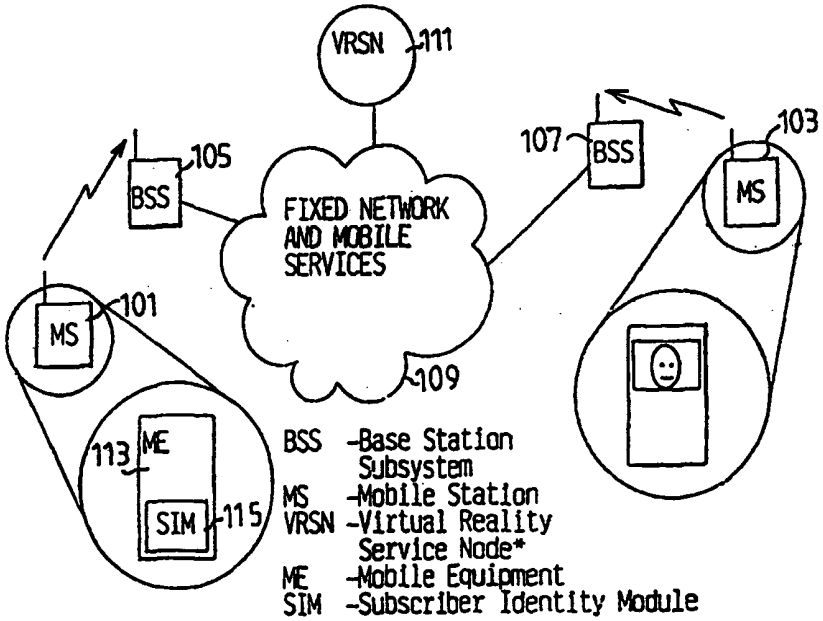
(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: METHOD AND DEVICE FOR STORING AND TRANSMITTING AVATAR INFORMATION FOR USE IN A VIRTUAL ENVIRONMENT



(57) Abstract

Information about avatar characteristics for a user are stored in a removable memory card (115), for example in a SIM card for the GSM system. The information regarding the avatar can then be moved from one access terminal to another. A virtual word, which the avatar is designed to enter, can then be accessed from many different access terminals by means of inserting the SIM card and entering a personal identity number (PIN) code. Thus by adding such a memory function to a removable memory card (e.g. a SIM card or a Smart card), besides of making it possible to access a virtual world from different access terminals, also makes it possible to use avatars in new applications, such as in a GSM phone or another mobile phone or terminal.

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METHOD AND DEVICE FOR STORING AND TRANSMITTING AVATAR INFORMATION FOR USE IN A VIRTUAL ENVIRONMENT

TECHNICAL FIELD

The present invention relates to a method and a device for facilitating the handling of information in a virtual environment. In particular the present invention relates to storage and transmission of avatar information.

BACKGROUND OF THE INVENTION AND PRIOR ART

The development of Internet and other large computer networks has made it possible meet, play, work, and exchange information in a virtual environment instead of in the real world. In such a virtual environment users, which have entered the virtual world, can communicate with other users by means of an avatar.

An avatar is a character, which can move around in the virtual world and communicate and/or interact in the common context of the virtual world under control of a user. The virtual world or virtual reality (VR) can be generated by any suitable graphical code, such as Virtual Reality Modelling Language (VRML).

The avatar can usually be whatever the user desires, for example a cartoon, a fish, a three-dimensional picture of the user or any graphical element. To other users of the virtual world the avatar is the graphical representation of the character the user represents. The avatar is sent into the virtual world, when the user controlling the avatar logs on to the virtual world.

Another example of an avatar is a "talking head", i.e. a three-dimensional representation of a person's head, which can move its lips in synchronisation with speech. Talking heads can be used to create an illusion of a visual interconnection, even though the connection used is a speech channel.

Furthermore, in "Shared Spaces", British Telecommunications Engineering, vol 15, July 1996, avatars for use in, e.g. telephone networks are described.

Also, in GSM 01.02, "Digital cellular telecommunications system (Phase 2+); General description of a GSM Public Land Mobile Network (PLMN)", European Telecommunications Standards Institute

(ETSI), Valbonne, France, 1996, GSM 02.17 (prETS 300 922). "Digital cellular telecommunications system; Subscriber Identity Module (SIM) Functional characteristics", European Telecommunications Standards Institute (ETSI), Valbonne, France, 1996 and GSM 11.11 (ETS 300 977). "Digital cellular telecommunications system (Phase 2+);"Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface", European Telecommunications Standards Institute (ETSI), Valbonne, France, 1997. A GSM PLMN network and a SIM-card for use in a GSM system are described.

However, there is a problem of making the technique suitable for access of a virtual world from different access terminals. Thus, when logging on to the virtual world, information regarding the avatar must be sent from the access terminal to the virtual world in order for the avatar to appear in the virtual world. This information is today usually stored in a memory of the access terminal, so that when logging on to the virtual world information regarding the avatar is fetched from the memory of the access terminal and transmitted to the virtual world. Thus, the virtual world can only be accessed from certain, pre-selected, terminals in which the avatar information is stored.

SUMMARY

It is an object of the present invention to overcome the problem as set out above. This object is obtained by means of adding a new memory function in a removable memory card, such as a Subscriber Identity Module (SIM) or a smart card and by integrating the information about the avatar in the card.

It is another object of the present invention to provide a method and a system whereby an avatar can be used in a mobile phone or a mobile communications terminal.

Thus, by storing information about the avatar characteristics for a user in a removable memory card, for example in a SIM card for the GSM system, the information regarding the avatar can be moved from one access terminal to another. The virtual world can then be accessed from many different access terminals by means

of inserting the SIM card and entering a personal identity number (PIN) code.

The new added memory function, besides of making it possible to access a virtual world from different access terminals, also makes it possible to use avatars in new applications, such as in a GSM phone or another mobile phone or terminal.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described in more detail by way of non-limiting examples and with reference to the accompanying drawings, in which:

- Fig. 1 is a general view illustrating exchange of avatars in a GSM PLMN network.
- Fig. 2 is a schematic block diagram of a GSM SIM card memory system.

DESCRIPTION OF PREFERRED EMBODIMENTS

In Fig. 1, a general view of a GSM- (Global System for Mobile communication) PLMN (Public Land Mobile Network) is shown. The network comprises Mobile stations (MS) 101 and 103, which can connect to different base station subsystems BSS 105 and 107, respectively. The base stations 105 and 107 are interconnected by means of a network 109, which can comprise different services for mobile telephony. One such service that can be provided is a service for virtual reality as indicated by the service node 111 connected to the network 109.

Furthermore, the mobile stations 101 and 103 in the embodiment shown are mobile equipment 113 having a Subscriber Identity Module (SIM) 115. Thus, the GSM PLMN network, as described in the above cited papers, has a wireless interface with the mobile stations (MS) 101 and 103, the subscribers mobile equipment 113, such as cellular phones, via base station subsystems (BSS) 105 and 107 covering geographical cells.

Each MS 101 and 103 thus consists of mobile equipment 113 that carries a SIM (subscriber identity module) 115 which authentifies the subscriber using the international mobile

subscriber identity (IMSI) code of the SIM 115 and the cryptographic features of the system. In a preferred embodiment, the SIM card is a simple type of Smart Card, which easily can be removed from the mobile equipment 113.

When a subscriber enters a cell, i.e. an area covered by a BSS 105, 107 of the network, the MS and BSS exchange information between each other, such as an IMSI code. In this stage a list of supported or subscribed services are also transferred to the network from the MS 101. Much of this information is stored in the SIM card of the MS 101 and especially the service list.

In Fig. 2 the SIM files for a SIM card for use in a GSM-system is shown. Thus, the SIM files 201 comprise a master file 203. The master file comprises three different directories one GSM file 205, one telecommunication file 207 and one avatar identification file 209. The files 205 and 207 are present in conventional GSM SIM cards. In figure 2 the extensions in the file content of the SIM card 115 for supporting an avatar service are marked. The service list (EF-SST) 211 is extended with a service (No 40) 213 for avatar identity. In combination with the security facility of the GSM system, the network may ask the MS for the subscribers trusted avatar identity representation. There may be several types of avatar representations for different use stored on the SIM card.

One application may be what can be referred to as "A-face" presentation. This is the same functionality as A-number presentation in the original, conventional, telecommunication network, but in this case a simple iconic representation of the calling subscriber (A subscriber) is transferred during call-up to the B subscriber to be presented before the called mobile station 103 picks up the call. In figure 2 this is referred to as EF-AICON 215 and is located under the avatar identification directory 209.

It is also possible to use the avatar feature made available by means of including it in the SIM-card to enter with an avatar into a virtual world using a 3d representation stored in a EF-

A3D file 217 on the SIM. This is done by the network asking the MS 101 and 103 for this specific type of representation after the communication has been established with the virtual world.

In yet another preferred embodiment the system is supplemented with a "talking head" representation, which may be defined in an EF-THMODEL file 219 on the SIM. This representation is used by the network or other MS units in the network to modulate the avatar representation synchronously with the subscriber's speech, e.g. moving the lips and face of an avatar presentation synchronously with the speech.

Different services in the network may ask for avatar representations, such as downloading avatars or the talking heads model for personalizing an agent for e.g. animated avatar enhanced voice mailbox messages.

Thus, by storing avatar information on a removable memory card, such as on a SIM card, Smart card or the like, the information about the avatar can be moved around and used in many different equipment. The avatar card can for example be used for accessing a virtual world from a mobile phone, a public phone booth, a public internet terminal, a personal computer (PC) or any other communication that can read the card comprising the avatar information. The use of such an avatar card in the form of a SIM card a Smart card etc. will facilitate the introduction and the use of new telecommunication services using avatars.

CLAIMS

1. A removable memory card, characterised by means for storing information about an avatar, which information can be read and transmitted to a virtual world when the card is used for entering such a virtual world.

2. A card according to claim 1, characterised in that the card also stores telecommunication information.

3. A card according to any of claims 1 - 2, characterised in that the card is a SIM card.

4. A card according to any of claims 1 - 2, characterised in that the card is a Smart card.

5. A device for communication, characterised by means for receiving and reading the card according to any of claims 1 - 4.

6. A device according to claim 5, characterised in that the device is a mobile telephone.

7. A device according to claim 5, characterised in that the device is a mobile communications terminal.

8. A device according to any of claims 5 - 7, characterised by means for providing and transmitting an iconic representation to another device contacted by the device.

9. A device according to claim 8, characterised in that the iconic representation is a talking head.

10. A method of transmitting avatar information to a virtual world, characterised in that avatar information is read from a removable memory card and then transmitted to the virtual world.

11. A method according to claim 10, when the memory card is located in a mobile telephone, characterised in that the information transmitted comprises information for providing an iconic representation of the transmitted avatar at a contacted mobile telephone.

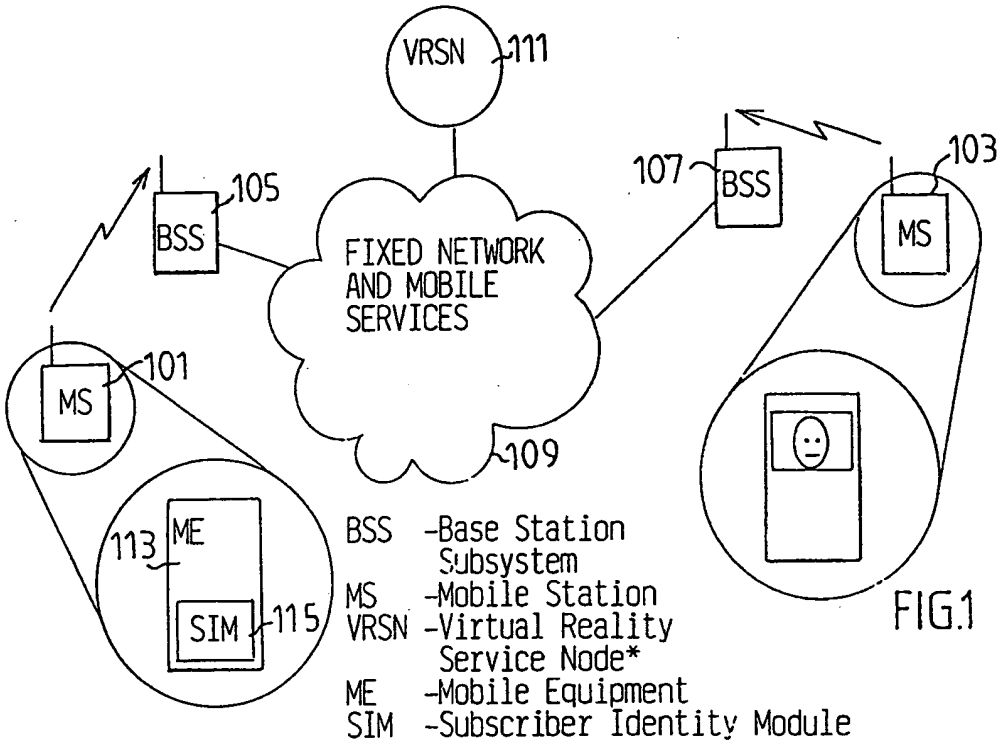
VRSN
111
105
BSS
FIXED NETWORK AND MOBILE SERVICES
107
BSS
103
MS
101
MS
109
113
ME
SIM
115
BSS -Base Station Subsystem
MS -Mobile Station
VRSN -Virtual Reality Service Node*
ME -Mobile Equipment
SIM -Subscriber Identity Module

FIG.1

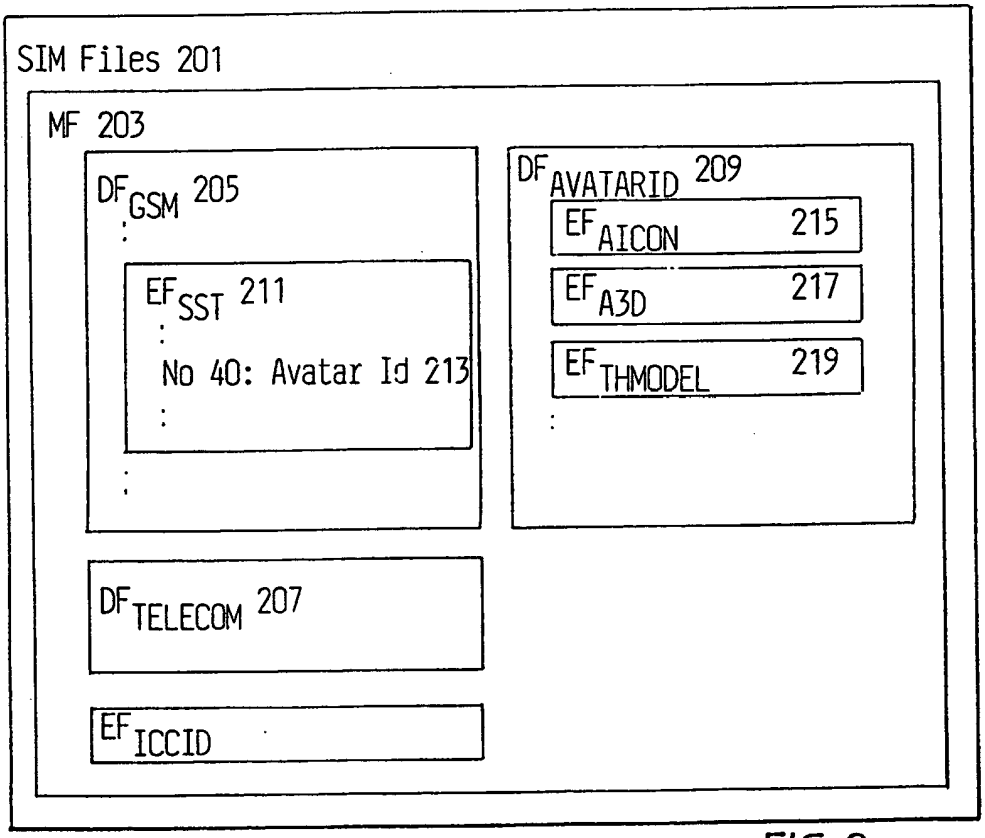
SIM Files 201
MF 203
DF GSM 205
EF SST 211
No 40: Avatar Id 213
DF AVATARID 209
EF AICON 215
EF A3D 217
EF THMODEL 219
DF TELECOM 207
EF ICCID

FIG.2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/00870

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: G06F 19/07, G07F 7/08, H04Q 7/32, G06T 5/00
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: G06F, G07F, H04Q, G06T

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5553864 A (DVID H. SITRICK), 10 Sept 1996 (10.09.96), column 1, line 28 - line 50; column 1, line 54 - column 3, line 62; column 8, line 4, figure 1B, colun 12, line 52 ---	1-11
Y	Integrating virutal reality and telepresence to remotely monitor construction sites: a VIRTUE project Artificial Intelligence in Structual Engineering. Information Technology for Design, Collaboration, Maintenance, and Monitoring p. 459-63 May 1998, Arkady Retik, see page 459, line 11 - line 14; page 461, line 6 - line 7 ---	1-11

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Three companies combine technologies to offer wireless e-mail application, Report on smart cards, February 16, 1998 Vol: 12 Issue 3, Document Type: Newsletter, Publicher: BRP Publications --	1-11
P,X	Numerous operating systems, bank delays hinder smart card growth for security, analyst says, Jerry Ashwoth, Editor, Report on electornic Commerce, Se ember 8, 1998, Vol: 5, Issue: 16, Document Type: Newsletter --	1-11
P,X	WO 9857474 A1 (GEMPLUS S.C.A.), 17 December 1998 (17.12.98), page 11, line 24 - line 25, figures 1, 2 --	1-11
A	EP 0696018 A2 (NIPPON TELEGRAPH AND TELEPHONE CORPORATION), 7 February 1996 (07.02.96) --	1-11
A	US 5546463 A (ANTHONY A. CAPUTO ET AL), 13 August 1996 (13.08.96) -- --------	1-11

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/SE 99/00870

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		EP 0942397 A	15/09/99
		JP 8046704 A	16/02/96
		US 5736982 A	07/04/98
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		JP 9023275 A	21/01/97
US 5546463 A	13/08/96	US 5778071 A	07/07/98
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